Types of Industrial Ports as Viewed from the Way to Use Wharves

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1. Introduction

In the process of economic development of our country, it may be said, it is because, with the unusually rapid expansion of industrial productivity in the national economy and increase in trade volume, the improvement and enlargement of port facility and the development of port function have been demanded, that ports have come to be made much of (T. Kitami, 1964).

For capitalism to push the reproduction process forward on the motive power of expansion of industrial productivity and progress in industrial trade, it was necessary to rationalize not only production process, but distribution process, aiming at the increase in profit rates which would follow the expantion of industrial productivity. Ports, therefore, must be suitable for the development of the reproduction on a progressive scale (T. Kitami, 1968, T. Nagano, 1976).

It is pointed out that among ports, the coming into being of industrial ports was atributed to the following three factors; firstly, was breaking the bottleneck in transportation as a link in production process, with the help through the execution of a national policy; secondarily, promotion of revolution in distribution; thirdly, demand by manmoth industrial capital in production process of national economy (Y. Masaki, 1965).

And an industrial ports is now recognized to be the base for the development of a region, and, at the same time, a powerful factor of location of seaside industry, per-ei forming its primary duty in that sense. In other words, it exercises potent influences on the accumulation and augment of monopolistic capital in relation to the highly developed and industrialized industrial construction demanded by the establishment (Y. Masaki, 1966, T. Nagano, 1968, 1973).

Industrial ports have already been classified by kinds or types by T. Yano (1943), Y. Masaki (1958), S. Sasaki (1964), S. Konno (1969), and Y. Kuris (1974), with their function, extent of factories gathered, body of engagement, ship types, cargoes handled, developing methods, presence or absence of transportation as their indexes.

Now, in this paper, the author, as an aid for the investigation into the structure of our industrial ports themselves and their regional characteristics, intended to make

clear the relation between industrial ports their background seaside factories, and the form of the utilization of wharves followlng it, thus making an attempt at a new classification by types.

2. Forms of industrial ports as viewed from the point of their utilization of their Wharves.

When we think of the forms of the wharves utilized, wharves may generally be classified into two large groups: "wharves for general cargoes (general wharves)" whose purpose is to handle various kinds of cargoes and "exclusive wharves by items (exclusive wharves)" whose purpose is to handle specific kinds of cargoes (S. Konno, 1966).

In the case of general wharves, carrying trade in the port performs a chief part in the operation on the wharves, especially handling of cargoes, and it may be said that those wharves were the central equipments in the former commercial ports, while in the case of exclusive wharves, rationalization of management and operation has made rapid progress because they are easily mechanized and made to answer purposes, as compared with the wharves above mentioned. And the exclusive wharves are more efficient for some specific items, leading to the diminition of the part for the carrying trade in the port to perform. For the ships connected with the wharves, it may be said, general cargo ships are now the main ships for the general wharves, while exclusive ships are for the exclusive wharves. In the point of wharf management in our country, "public wharves" are mostly found in the former and "private wharves" are in the latter.

In the industrial ports, as their characteristics, much weight is given to private wharves and exclusive use by specific enterprises for separate items is remarkably extending.

Private wharves are, from the kinds of cargoes, classified into the following eight groups:

1) "wharves exclusively used for taking in ores" ——representative are those wharves for major steel makers to bring in raw materials.
2) "wharves exclusively used for taking in steel" ——as industrial products.
3) "wharves exclusively used for taking in liquid" ——as seen in the private berth of oil refinery and represented by those wharves used for C. T. S of Kiire Port and for liquid natural gas of Yokohama Port.
4) "wharves exclusively used for taking in cereals" ——kept in silos where bucket elevater and pneumatic suction are usd.
5) "wharves exclusively used for taking in timber and chip."

6) "wharves exclusively used for taking in foodstuffs."
7) "wharves exclusively used for taking in cars."
8) "wharves used for taking in containers"——different in character from the above seven wharves which are all exclusive wharves, while the eightth wharves are the berths for liners which handle general cargoes.

(1) For the use of the public wharves in the industrial ports, too, however, in many cases, restricted few specific persons use them privately and so they have virtually become private wharves. In this meaning it may be said that the public wharves in the industrial ports are essentially different in character from those in the distribution ports which make it their principle for many and unspecified persons to use them (T. Nagano, 1973).

The problems to be solved by which our post-war reconstruction economy was confronted were an increased yield of foodstuffs, security of energy, restoration of basic industries, such as steel. Especially, the great strides which the steel industry and the oil chemical industry made and the covertion of energy from coal to oil, with the advance of heavy chemical industrialization, caused the dependence of the resources of industrial materials on oversea countries. As the result, there was seen regional development of heavy chemical industries, there being formed, in seaside areas, producing bases of raw materials, and primary manufacturing complexes, and manufacturing factories of secondary type industries, furthermore, factories of mass production type according to the kinds of industries and regional conditions, and other factories of allied industries.

Thus, in the industrial ports which have been rapidly developing after the war, the seaside industries have grown to be formed with wharves for private use factory wharves as their center, by depending, whithout exceptions, on oversea resources on one hand, and by being combined with the tendency of ships towards the use for exclusive cargoes and mammoth bulk on other hand. Therefore, when the industrial ports are viewed from the angle of the utilization form of wharves, "industrial ports whose nucleus is the seaside factories using private wharves" may be admitted as the first type. The typical industrial ports using these wharves are ports of the range of seaside industrial areas to which Chiba, Kawasaki, Yokkaichi, Sakai, Mizushima, Iwakuni, Tokuyama, and in addition to them, Kashima, Fukuyama, Ōita, etc. belong ——ports which have formed what is called the Pacific coast belt.

(2) The second type is "industrial ports whose nucleus is the seaside factories using public general wharves."

The original wharf using model of this type was found in those factories of heavy chemical industries in Tōkyō and Ōsaka which were located along rivers or canals, or those of comparatively small scale scattering in inland areas of cities when they

gathered and used wharves. Their characteristics is their participation in the urban society by their regional congregation. But, for heavy chemical industries, many factories had already been located before the war (S. Konno, 1965). Furthermore, when it is viewed in its connection with ocean transportation the original model of wharf using was formed by the industries in the days of merchantmen when the exclusive ships had not appeared yet. From what has been said above, it is considered that there is some reason in the use of public general wharves of those industrial ports and at the same time they have their historical backing and they are of one type of industrial type (S. Konno, 1969). Among these industrial ports whose nucleus is the seaside factories using public general wharves are the ports of such large cities as Tōkyō, Ōsaka, Nagoya etc. which were the pioneers of heavy chemical industrialization in our country.

(3) However, it is not easy to put together all those factories of the seaside industrial areas which were formed after the war into the type of "industrial ports whose nucleus is the seaside factories using private wharves" as the first type. For there are some cases, as seen in Onahama Port, an industrial port in our country, where seaside factories have grown to be built up, dependent on public wharves (T. Nagano, 1968). In the case of Onahama port, as is clearly known by its process of formation, the central kinds of industries of the factories which were located in the seaside areas were nonferrous metals and chemistry in which transportation volume of cargoes is comparatively small to production cost. And this port was not in a state of strong necessity for having factory wharves for private use, as in the case of steel and oil. Therefore, those factories which were located behind this port may be said to have been dependent entirely on public wharves for the use of wharves.

The process of forming of Onahama Port as an industrial port, tells that the factories behind the port have been successively located and expanding independently of improvement of the port facilities. In this case, however, in the industrial area behind there have been qualitative change from an industrial area of inland type where factories are located for the resources to a seaside industrial area and with the change a process of the factories behind connecting directly with the port (T. Nagano, 1968). Thus, for management form and using form of the wharves of Onahama Port, public wharves and wharves used as if they were private ones are the principal forms respectively.

Now, the author thinks that, it is necessary to consider, "industrial ports whose nucleus is the seaside factories using public private wharves" a type, as a third type. This type may be said to be the industrial ports of the Japan Sea districts and the Tōhoku districts which are rather underdeveloped areas.

3. Conclusion

The ways to use wharves of our industrial ports may be boldly classified into the following three types from the connection with the industrialzation of the areas behind, port operative form, cargoes handled, ships which use wharves (S. Konno and T. Nagano, 1971).

1. Industrial ports whose nucleus is the seaside factories using private wharves.
2. Industrial ports whose nucleus is the seaside factories uisng public general wharves.
3. Industrial ports whose nucleus is the seaside factories using public private wharves.

However, the author should think, in order to make sure that this classification of industrial ports into the three types is right, further detail analysis of required conditions is necessary, when consideration is given to the historical backing which has made an industrial port formed, the process of its formation, the relation between the scale factories and the form and scale of transportation, and, furthermore, the growing degrees of regional economy.

The points raised by the classification of industrial ports into types, viewed from the forms of wharf using, are how to make public investments and to establish clear-cut lines between their public character and economical one in the management and operation of industial ports (Y. Izumi, 1971, E. Shibata, 1972, The Japan Port Association, 1970).

Foundamentally, thorough investigations must be carried out on the question, for what kind of capital the industrial ports directly operate as terminal function and further studies must be positively pursued.

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